

**Claims: What is claimed is:**

I claim:

1. A kinetic device and method for producing visual displays comprising:  
a single or multiplicity of lighted arrays comprised of at least one light emitting element;  
a controller coupled to the elements of the lighted array;  
an inertia reversal sensor which is able to detect reversals in the direction of inertia imposed upon it;  
said controller being programmed to measure a half-cycle swing of kinetic motion by detecting adjacent inertia reversals through means of the inertia reversal sensor;  
said inertia reversal sensor being disposed within the lighted array as one of the members of the array;  
said controller being programmed to deliver display data in a columnar piecewise fashion to said lighted array;  
said controller being programmed to normalize the column delay for each half-cycle swing of the lighted array by counting the number of columns displayed in each previous swing, such that all columns fit within the current half-cycle swing width;  
the display is actively normalized to repeatedly position the display within the half-cycle swing width;

said inertia reversal sensor is actively capable of sensing the inertia reversals, which occur at both extremes of the swing cycle. This one-half cycle measurement insures accurate placement of the graphic within the swing width; said inertial reversal sensor is kinetically activated, thereby providing a kinetic means for device activation, eliminating the need for separate on/off or mode switches; the display being actively adjusted, conforms to the kinetic controls of the user;

Whereby the user is able to kinetically control a visual display of text and graphics which makes use of the persistence of vision effect of human vision.

2. The display device of claim 1 wherein the display data is stored in a compressed format thereby enabling the storage of substantially more display data.

3. The display device of claim 1 wherein the lighted array is comprised of obscured or pigmented light emitting diodes; whereby the kinetic visual display is rendered substantially more readable than clear diodes.

4. The display device of claim 1 further including a multiplicity of lighted arrays, one or more of which provide visual feedback to the user, thereby confirming the desired operation of visual displays as well as enabling viewers surrounding the device to see the display.

5. The display device of claim 4 whereby one or two way communication is conducted by the user and viewers of said display device.

6. The display device of claim 4 wherein each lighted array is homogeneously comprised of colored light emitting elements, each array differing in color, one from the other; whereby a different color display is produced by each lighted array, creating a very pleasing display which combines both colors when viewed from varying angles.

7. The display device of claim 1 wherein the device operates in at least one of a multiplicity of predetermined modes such that the method of display of visual data is controlled by the user.

8. The display device of claim 1 wherein a predetermined portion of the display data is loadable to the device by the user; further including a wired or wireless means of inputting display data to the device; whereby the user is able to program custom display data into the device.

9. The display device of claim 1 further including a means of packaging the lighted array thereby protecting the device and providing space for imprinting advertising graphics.

10. The display device of claim 1 further including a lighted array comprised of a multiplicity of multicolor light emitting elements and a means for turning on each color in the multicolor element selectively, in various modulations; whereby full color or multicolor visual displays are produced by the device.

11. The display device of claim 1 wherein differing modes of operation are employed to select programmed data for display; modes comprised of user selected, random selected, forced, or combinations of said modes; whereby the user is able to select and vary what is displayed.

12. The display device of claim 1 further including a programming means whereby the device can be programmed with a custom set of display data and operational modes, conforming to the customers order, greatly lowering the costs and complexities of producing custom programmed devices.

13. The display device of claim 1 wherein each lighted array of said multiplicity of lighted arrays, form part of a graphic image; said parts of a graphic image being displayed as the device is moved through space forming a kinetic light puzzle; said controller responding to the users kinetic motions, allowing the user to control where the parts of a graphic image appear in space; whereby the complete image is assembled in the visual display only when the device is waved at the predetermined correct speed and swing width.

14. The display device of claim 1 wherein the lighted array is comprised of a complete character display element; said controller energizing the display after data for a complete character has been sent to the display; whereby the display is generated a character at a time as the device is moved through space.

15. A kinetic device and method for producing visual displays comprising:  
a single or multiplicity of lighted arrays comprised of at least one light emitting element;  
a controller coupled to the elements of the lighted array;  
an inertia reversal sensor which is able to detect reversals in the direction of inertia imposed upon it;  
said controller being programmed to detect adjacent inertia reversals through means of the inertia reversal sensor;

the inertia reversal sensor providing turn on and turn off detection based on the kinetic energy applied to the sensor;  
said controller being programmed to deliver display data in a columnar piecewise fashion to said lighted array;  
said lighted array comprised of at least one style of predetermined graphics shape or alphanumeric characters;  
whereby the predetermined graphics or alphanumeric characters appear and hang in mid air when the device is moved through space;

16. A kinetic device and method for producing visual displays comprising:  
a single or multiplicity of lighted arrays comprised of at least one light emitting element;  
a controller coupled to the elements of the lighted array;  
said controller being programmed to deliver display data in a columnar piecewise fashion to said lighted array;  
the lighted array being substantially fixed in position and relying on the observer to provide the kinetic motion required to produce a visual display by scanning the observer's eyes past the lighted array.

17. The display device of claim 16 pivotably mounted, such that the lighted array sweeps rotationally around the circumference of a circle;  
the speed of rotation being variable; whereby a visual display is

produced which appears stable or precedes or recedes around a central pivot point.

18. The display device of claim 17 further including a rotational position sensing means for differentiating the upper half, from the lower half of the circle circumscribed by the lighted array; the display being adjusted such that graphics displayed in the lower half of the circle are correctly oriented, matching the orientation of graphics in the upper half of the circle; whereby a viewer is enabled to view a display in which no graphics are inverted.

19. The display device of claim 16 wherein the lighted array is slanted, arched, angled, or pointed, such that the eyes of the viewer are thereby guided to scan the array in the direction pointed to by the array; whereby the viewer is enabled to see visual displays which are correctly oriented when scanned in the direction indicated by the inclination of the lighted array.

20. The display device of claim 16 wherein the array is integrated into articles of clothing, notebooks, and other items; whereby a visual display is produced when the viewer's eyes scan across the lighted array.